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Title: The case of Canadian nanotechnology innovation

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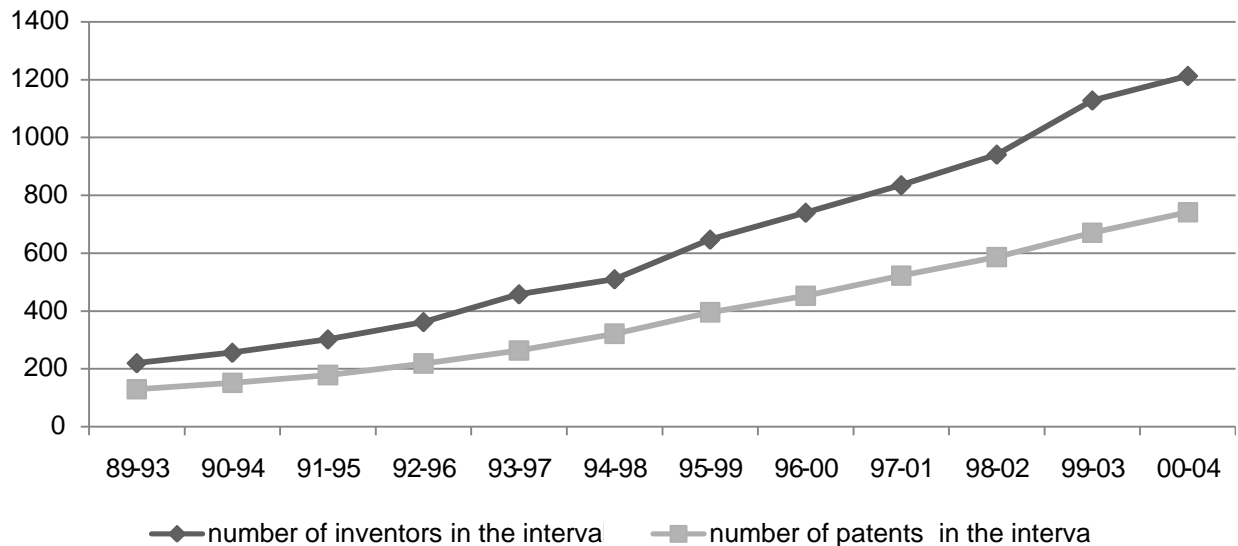
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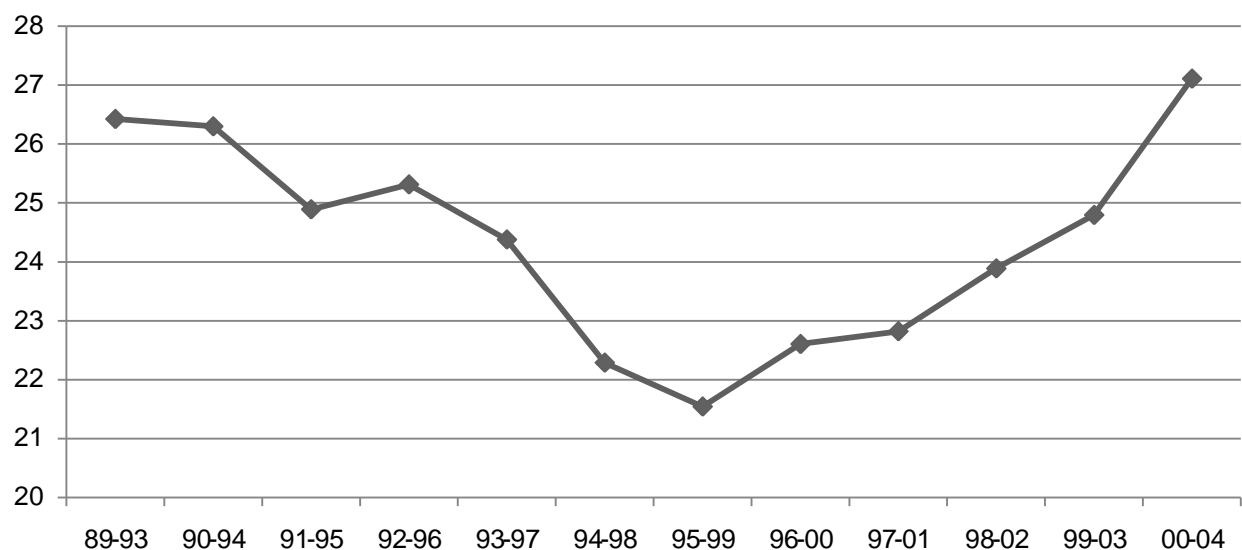
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PRUH LQYHQWRUV DQG WKXV KDYH PRUH SRWHQWLDO VRXU
EHWWHU RSSRUWXQLWLHV WR VSUHDG LQIRUPDWLRQ IX
WUDQVPLVLRQ RI LQIRUPDWLRQ WKURXJK WKH QHWZRUN
EHFDXVH RI WKHLU QXPHURXV GLUHFW FRQQHFWLRQV DQ
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OD[3ULRU & RZQ DOO DV WKH DYHUDJH \$YDFURVU & RZQ DOO GHVFDWR
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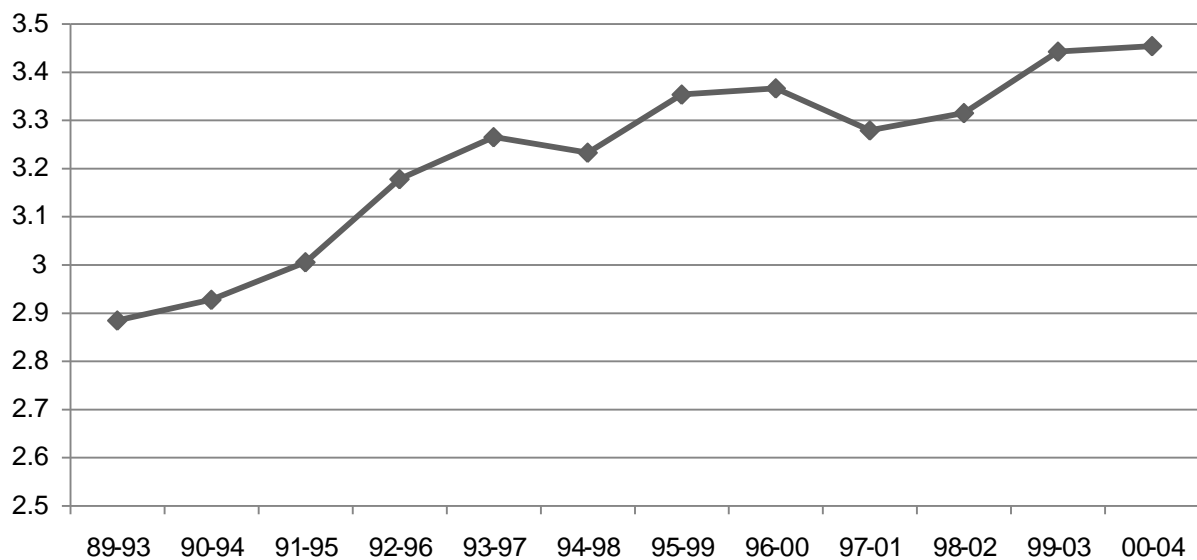
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,QYHQWRU FHQWUDOLW\ SRVLWLRQ +

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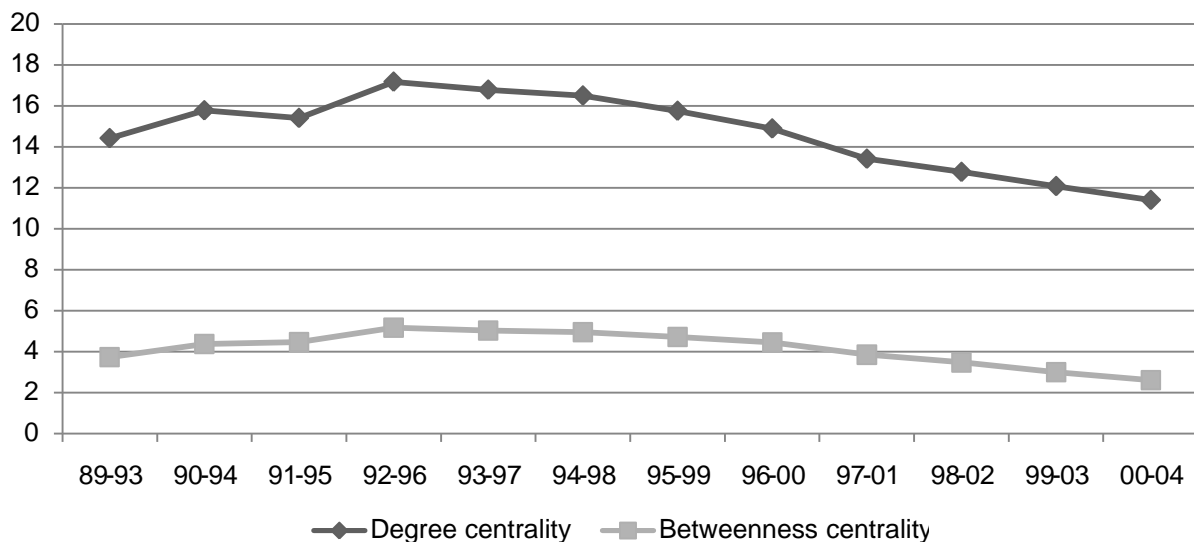


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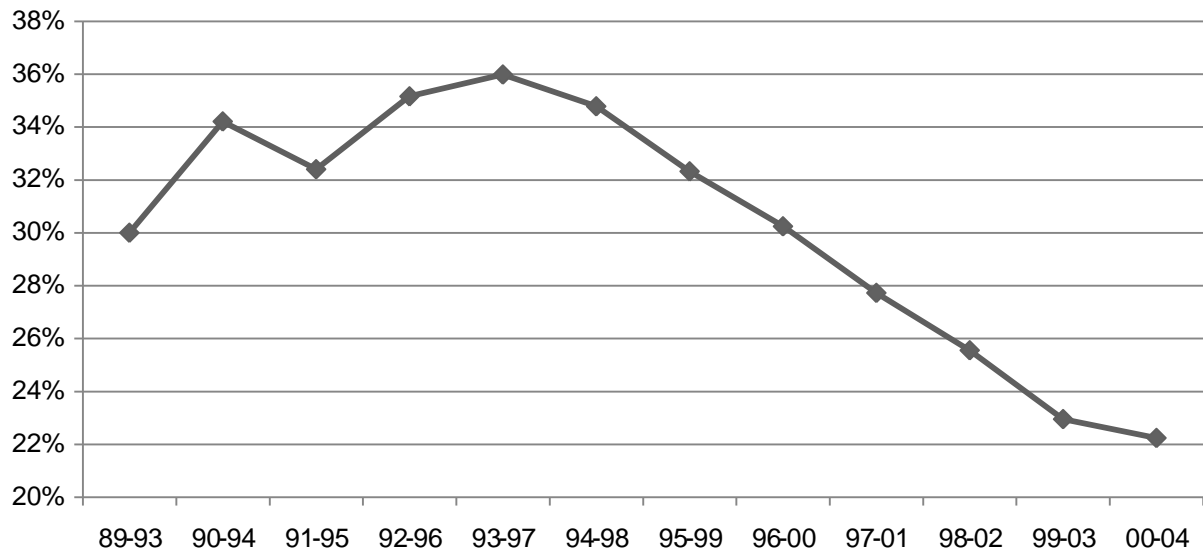


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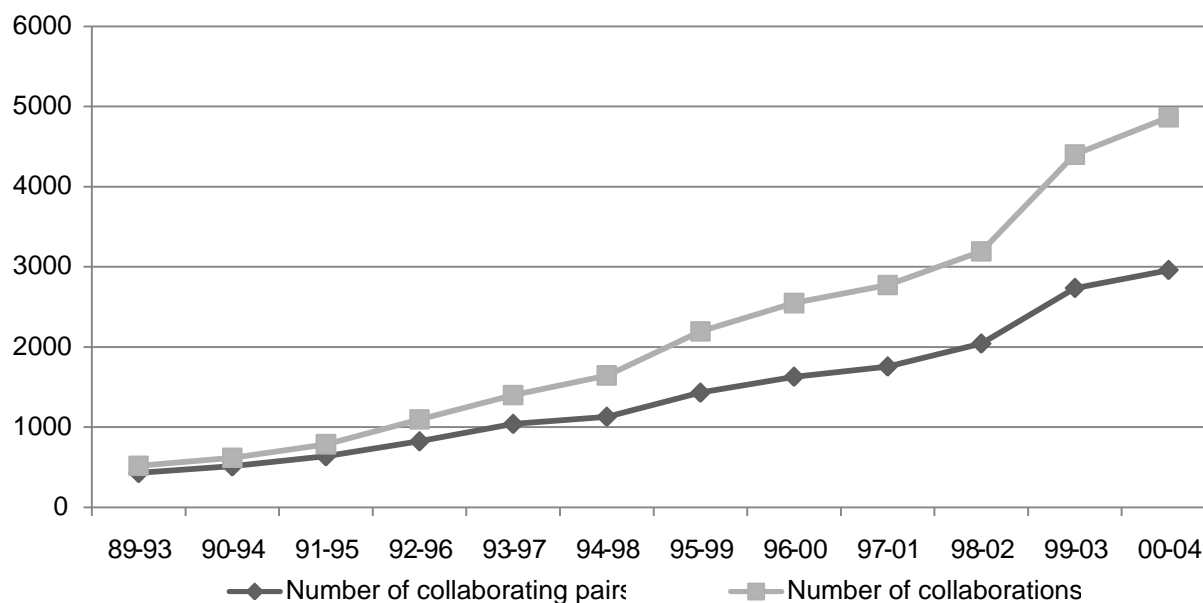
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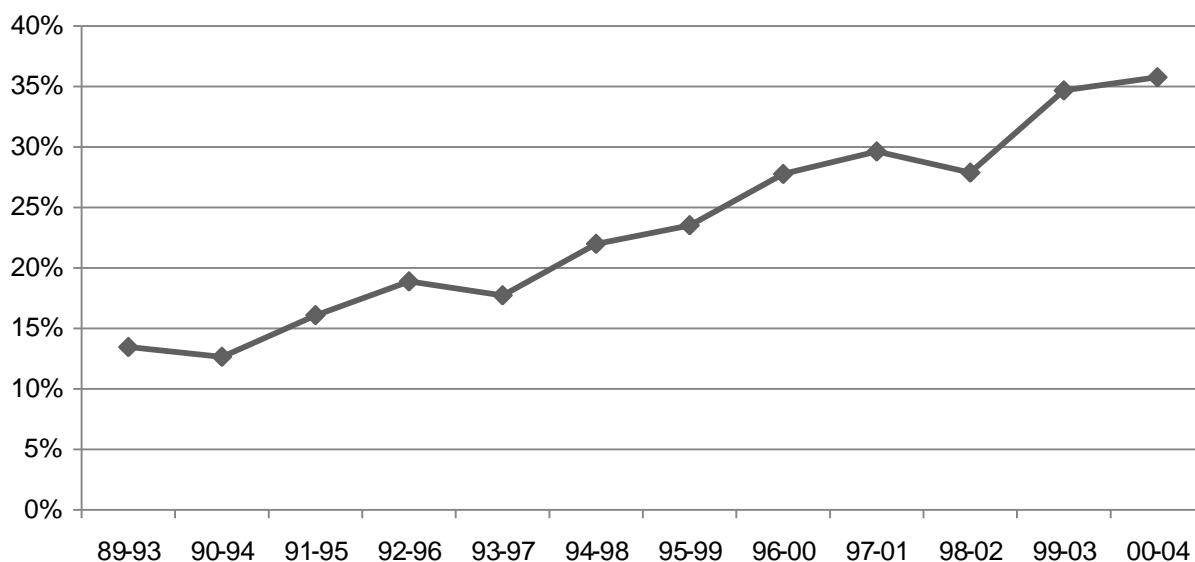
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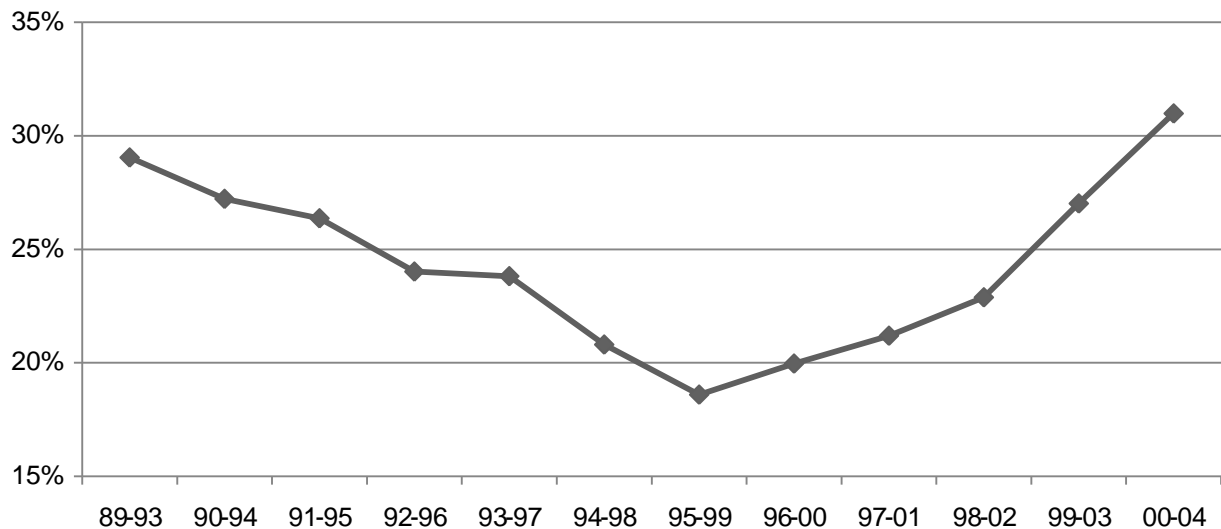


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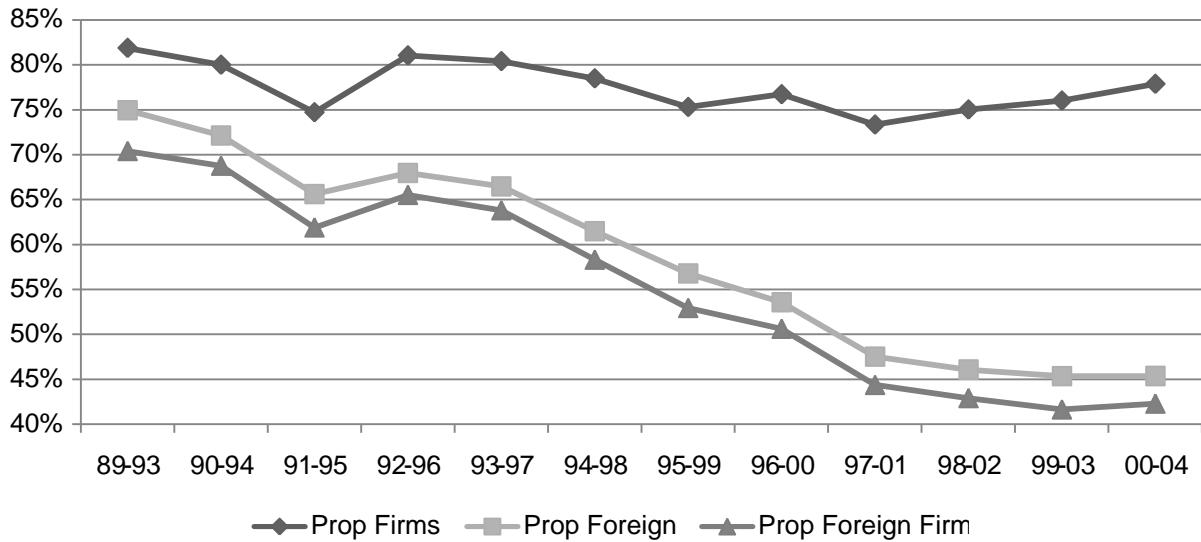
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VDP SOH IROORZHG E\ DQ LQFUHDVLQJ LQWHUQDWLRQDO L
HYROXWLRQ RI WKH SURSRUWLRQ RI IRUHLJQ FROODERUDW
RI FODLPV SHU SDWHQW SUHVHQWHG DERYH LQ)LJXUH 7
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ODUJHU SURSRUWLRQ RI WKH LQWHOOHFWXDO SURSHUW\
FXUYH RI LQWHUQDWLRQDO FROODERUDWLRQ LV WKXV QRW

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&RXQFLO RI &DQDGD JUDQW QR :H DUH LQGH
HGLWRUV RI WKL VSHFLDO LVVXH :H DFNQRZOHGJH KHOS
ZHOO DV IURP WKH HGLWRUV RI WKL VSHFLDO LVVXH :H
E\ 0DUWLQ 7UpSDQLHU \$KPDG %DULUDQL SURYLGHG UHVH
UHVSRQVLEOH IRU DQ\ UHPDLQLQJ HUURUV

5HIHUHQFHV

\$OOHQ 5 & &ROOHFWLYH LQYHQWLRL -RXUQDO RI (F

\$JUDZDO \$ &RFNEXUQ , DQG 0F+DOH - *RQH EXW
ODERXU PRELOLW\ DQG HQGXULQJ VRFLDO UHODWLRLVKL

%DOFRQL 0 %UHVFKL 6 DQG /LVVRQL) 1HWZRUNV
\$Q H[SORUDWLRQ RI ,WDOLDQ SDWHQW GDWD 5HVHDFK
%DXP - \$ & DQG ,QJUDP 3 ,QWHURUJDQLJDWLRQDO
7RZDUG D EHKDYLRUDO WKHRU\ RI WKH LQWHUILUPÆ ,Q
(FRQRPLFV RI &KRLFH &KDQJH DQG 2UJDQLJDWLRQ (VVD
(GZDUG (OJDU &KHOWHQKDP 8.
%UHVFKL 6 DQG /LVVRQL) .QRZOHGJH QHWZRUNV IU
DQG UHVHD,OF 6WUXFWXUDO HWVRHG + DQG 6FKPRFK 8 HGV +
4XDQWLWDWLYH 6 7 5HVHDFK .OXZHU \$FDGHPLF 3XEOLV
%UHVFKL 6 DQG /LVVRQL) ³&URVV ILUP´ LQYHQWRU
NQRZO HGJH VSLOORYHUV UHYLVLWHG \$QQDOHV GÆ(FRQ
%RQDFFRUVL \$ DQG 7KRPD * ,QVLWXWLRQDO FRPS
LQ QDQR VFLHQFH DQG WHFKQRORJ\ 5HVHDFK 3ROLF\
%XUW 5 6 6RFLDO FRQWDLJRQ DQG LQQRYDWLRQ &R
\$PHULFDQ -RXUQDO RI 6RFLRORJ\
%XUW 5 6 6WUXFWXUDO +ROHV 7KH 6RFLDO 6WUXFW
3UHV V &DPEULGJH 0\$
&DQWQHU 8 DQG *UDI + 7KH QHWZRUN RI LQQRYDW
QHWZRUN DQDO\VLV 5HVHDFK 3ROLF\
&DWWLQL * DQG)HUULDQL 6 \$ FRUH SHULSKHU\ SH
SHUIRUPDQFH 6RFLDO QHWZRUNV DQG FLQFRVWLFKLH
2UJDQLJDWLRQ 6FLHQFH
&RZDQ 5 -RQDUG 1 -DQG =LPPHLODWRU FRODERUDWL
QHWZRUNV 6651 :RUNLQJ 3DSHUV
'DKO 0 6 DQG 3HGHUVHQ & 2 5 .QRZOHGJH IORZV WK
FOXVWHUV P\WK RU UHDOLW\" 5HVHDFK 3ROLF\
GH 1RR\ : OUYDU \$ DQG %DWDJHOM \$ ([SORUDWRU
3DMHN &DPEULGJH 8QLYHUVLW\ 3UHV &DPEULGJH

)OHPLQJ / & .LQJ ,,, DQG -XGD \$ 6PDOO ZRUOGV
2UJDQLJDWLRQ 6FLHQFH

)RUD\ ' DQG /LVVRQL) 8QLYHUVLW\ UHVHDFK DQG
5RVHQEHUJ 1 +DOO % (GV +DQGERRN RI (FRQRPLFV
+ROODQG (OVHYLHU

*LWWHOPDQ 0 'RHV JHRJUDSK\ PDWWHU IRU VFLHQFH
DQG WKH JHRJUDSK\ RI UHVHDFK DQG SDWHQWLQJ LQ EL

*UDQRYHWWHU 0 6 7KH VWUHQJWK RI ZHDN WLHV \$P

*XODWL 5 6RFLDO VWUXFWXUH DQG DOOLDQFH IRUPD
\$GPLQLVWUDWLYH 6FLHQFH 4XDUWHUO\

+DXVPDQ - +DOO % + DQG *ULOLFKHV = (FRQRPLF
DSSOLFDWLRQ WR WKH SDWHQWV DQG \$ ' UHODWLRQVKLS

.OHYRULFN \$. /HYLQ 5 1HOVRQ 5 DQG :LQWHU 6
LQWHULQGXLVWU\ GLIIHUHQFHV LQ WHFKQRORJLFDQ RSSLQ

.RJXW % 7KH VWDELOLW\ RI MRLQW YHQWXUHV UHFL
RI ,QGXLVWULDO (FRQRPLFV

/DQMRXZ - 2 3DNHV \$ DQG 3XWQDP - +RZ WR FRXC
SURSHUW\ 7KH XVHV RI SDWHQW UHQHZDO DQG DSSOLFDV
±

/DQMRXZ - 2 DQG 6FKDQNHUPDQ 0 &KDUDFWHULVWL
FRPSHWLWLRQ 5\$1' -RXUQDO RI (FRQRPLFV

/DQMRXZ - 2 DQG 6FKDQNHUPDQ 0 3DWHQW TXDOLW
LQQRWDWLRQ ZLWK PXOWLSOH LQGLFDWRUV 7KH (FRQRPL

/HYLQ 5 & .OHYRULFN \$. 1HOVRQ 5 5 DQG :LQWHU 6
IURP LQGXLVWULDO UHVHDFK DQG GHYHORSPHQW %URRN

0F1LYHQ & 2YHUYLHZ DQG GLVFXVVLRQ RI WKH UHVX
QDQRWHFKQRORJ\ LQ &DQDGD 6WDWLWLVFV &DQDGD &DV
0H\HU 0 3DWHQW FLWDWLRQV LQ D QRYHO ILHOG RI V
LQWHUDEFWLRQV EHWZHHQ HPHUJLQJ FRPPXQLWLHV RI VFL

0XUUD\) ,QQRYDWLRQ DV FR HYROXWLRQ RI VFLHQW
WLVVXH HQJLQHULQJ 5HVHDFK 3ROLF\
1HZPDQ 0 (- &OXVWHULQJ DQG SUHIHUHQWLDO DW
5HYLHZ
3RUWHU \$ / <RXWLH - 6KDSLUD 3 DQG 6FKRHHFN '
QDQRWHFKQRORJ\ -RXUQDO RI 1DQRSDUWLFOH 5HVHDFK
6D[HQLDQ \$ 5HJLRQDO \$GYDQWDJH &XOWXUH DQG &
+DUYDUG 8QLYHUVLW\ 3UHVV &DPEULGJH 0\$
6FKUDGHU 6 ,QIRUPDO WHFKQRORJ\ WUDQVIHU EHWZ
LQIRUPDWLRQ WUDGLQJ 5HVHDFK 3ROLF\
6LQJK - &RODERUDWLYH QHWZRUV DV GHWHUPLQD
6FLHQFH
6RUHQVRQ 2 ~~5LYH~~ULQJ / &RPSOH[LW\ QHWZRUV
5HVHDFK 3ROLF\
7RQJ ; DQG)UDPH - ' 0HDVXULQJ QDWLRQDO WHFKQ
FODLPV GDWD 5HVHDFK 3ROLF\
7UDMWHQEHUJ 0 \$ SHQQ\ IRU \RXU TXRWHV SDWHQW
5\$1' -RXUQDO RI (FRQRPLFV
YDQ =HHEURHFN 1 DQG YDQ 3RWWHOVEHUJKH GH OD 3RWW
YDOXH (FRQRPLFV RI ,QQRYDWLRQDQ 1HZ 7HFKQRORJ\
YRQ +LSSHO (&RRSHUDWLRQ EHWZHHQ ULYDOV ,QIR

=XFNHU / * 'DUE\ 0 5 DQG \$UPVWURQJ - D *HRJUDS
6SLOORYHUV RU PDUNHWV" (FRQRPLF ,QTXLU\
=XFNHU / * 'DUE\ 0 5 DQG %UHZHU 0 E ,QWHOOFW
86 ELRWHFKQRORJ\ HQWHUSULVHV \$PHULFDQ (FRQRPLF 5
:DQJ - & &KLDQJ & + DQG /LQ 6 : 1HWZRUN VWUXF
RU FORVXUH SUHGLFW SDWHQW TXDOLW\" 6FLHQWRPHWUL

\$SSHQGL[

7DEOH 'HVFULSWLYH VWDWLVLVLFV PHDQ VWDQGDUG GHYLDWLRQ DQG

9 D U L D E O H 0 H C 6 W G

1 E & O D L P V

\$YH3DWSHULQY

\$YH'HJFHQW

1 E 6 W D U

0 D [3 D W S H U L Q Y

0 D [' H J F H Q W

\$YH%WZFHW

0 D [% W Z F H Q W

G) L U P

G) R U H L J Q

G 6 W D U

0D[3ULRU&ROO

\$YH3ULRU&ROO

1	R	W	H	\$	Y	H	U	D	J	H	D	Q	G	0	D	[L	P	X	P	G	H	J	U	H	H	F	H	Q	W	U	D	O	L	W	\	K	D	Y	H	E
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7DEOH 5HJUHVVLRQ UHVXOWV ZLWK WKH PHDQ QXPEHU RI SULRU FROO

\$YH'HJFHQW

OD['HJFHQW

+ \$YH%WZFHQW

OD[%WZFHQW

\$YH3DWSHULC

OD[3DWSHULQ

+ 1E6WDU

G6WDU

\$YH3ULRU&RO

+ \$YH3ULRU&RO

+ G)RUHLJQ

G)LUP

&RQVWDQW

<H DU GXPPLH \H \H \H \H \H \H \H

OQ DOSKD

&OXVWHUV

1

0HDQ :DOG FK

/RJ SVHXGROL

1RWH UHSUHVHQW VLJQLILFDQFH DW WKH DQG OHYHOV UHVSHFWLYHO\